

AMENDMENTS TO THE CLAIMS

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

Listing of Claims:

1. (Currently Amended) A magnetic tunnel junction device comprising:

a substrate; and

a seed layer, a pinning layer, a pinned ~~fixed~~ layer, a tunnel barrier, and a free layer

sequentially stacked on the substrate,

wherein a first surface of the tunnel barrier is adjacent to a first surface of the pinned layer,

and

a nitrogen-rich region exists at an interface of the first surface of the pinned layer and the
first surface of the tunnel barrier, the nitrogen-rich region containing more nitrogen than the pinned
layer contains at a second surface of the pinned layer opposite to the interface, and the nitrogen-
rich region containing more nitrogen than the tunnel barrier contains at a second surface of the
tunnel barrier opposite to the interface ~~a magnetoresistance buffer layer formed of a metallic nitride~~
~~is interposed between the fixed layer and the tunnel barrier, and the entire magnetic tunnel junction~~
~~device is thermally treated so as to reduce the magnetic junction resistance thereof.~~

2. (Currently Amended) The device as claimed in claim 1, wherein nitrogen is
combined with elements of the tunnel barrier in the nitrogen-rich region ~~during the thermal~~
~~treatment to form a nitrogen rich layer at the tunnel barrier.~~

3. (Canceled).

4. (Currently Amended) The device as claimed in claim 1 ~~[[3]]~~, wherein the seed layer is a ferromagnetic layer formed of one selected from the group consisting of NiFe, Ru, and Ir.

5. (Currently Amended) The device as claimed in claim 1 ~~[[3]]~~, wherein the pinning layer is a semi-ferromagnetic layer formed of one selected from the group consisting of FeMn and IrMn.

6. (Currently Amended) The device as claimed in claim 1 ~~[[3]]~~, wherein the pinned layer is a ferromagnetic layer formed of one selected from the group consisting of NiFe and CoFe.

7. (Currently Amended) The device as claimed in claim 2 ~~[[1]]~~, wherein the pinned layer contains iron, and
nitrogen is combined with iron of the pinned layer to form the magnetoresistance buffer
layer is a metallic nitride layer formed of FeN in the nitrogen rich region.

8. (Original) The device as claimed in claim 1, wherein the tunnel barrier is an insulating layer formed of AlO_x .

9 - 21. (Canceled).